

**ABSTRACT OF THE DISCLOSURE**

A co-generation system and a dehumidification air-conditioner, which generates electricity and provides highly efficient air-conditioning by reducing the latent heat load of the air-conditioner. Exhaust gas from either a turbine or an internal combustion engine heats air for desorption of adsorbed moisture from a humidity rotor. The humidity rotor has a sound adsorption material to attenuate high frequency noise coming from the exhaust outlet of the co-generation system.